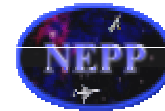




NASA Electronic Parts and Packaging Program (NEPP)



Title: Assessment Tools for Existing Space Grade & COTS Electronics Technologies

(check one) ☐ New Proposal ☒ Continuing NEPP Work

Total \$ Requested for FY01: \$ 98,000

Technology Type: ☒ Newly Available (COTS) ☐ Emerging/Advanced

Project Area: ☐ Parts ☒ Packaging ☐ Radiation

Proposing Center: GSFC

Participating Center(s): **100%** GSFC ☐ % GRC ☐ % LaRC
(Estimated Center ☐ % JPL ☐ % MSFC ☐ % JSC
Participation, %\$)

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Investigator: Melanie Ott

Objective(s): - Obtain samples of cable being considered for use from projects or from manufacturers with strong product bases.
- Perform a process inspection for manufacturers for whom NASA has little experience. Note materials and processes which have critical impact on the reliability of the cable.
- Design tests which address the critical design aspects and rugged environmental conditions.
- Feedback results to the manufacturers and projects and establish a partnership with manufacturers who are willing to modify their package to satisfy NASA needs and whose product has good potential for wide-ranging usage.
- Assess modified products
- Issue report of findings and test results.

NASA Customers: NGST, GLAS, Post 2000 Notional Earth Science Missions, NPOES, Spartan, SMEX, MDEX, Crosscutting Technology Program

Clearly Stated Deliverables:

- Description of the new cables available on the market that applicability to use in high reliability systems.
- Notes on any process inspections completed.
- Test report for environmental test of cables
- Recommendations for modifications to candidate cables
- Test report for testing of redesigned devices.

Top Level Schedule: 1st Qtr: research technology/manufacturing trends w/ mfrs & projects
1st Qtr: select new products to evaluate
1st Qtr: procure cable



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2nd Qtr: Draft test plan
3rd Qtr: Execute testing
4th Qtr: Analyze and publish results

Task Approach NASA enterprises benefit from our ability to validate new fiber optic cables.

to Meeting Three of the four NEPP objectives will be addressed in this work.

Projects will

NEPP Objectives: be provided programmatic level information about technology trends to help them. The information gained by prior work in this area have enabled NASA centers to benefit from the lessons learned through this program both from our engineers and from the vendors themselves. Our work helps the vendors understand the issues faced by NASA fiber users and how they can modify their products to meet NASA mission requirements. We have had great successes working with Spectran and W.L. Gore and must continue to do so with the increasing number of suppliers of this type of component. The data provided to NASA and the manufacturers through this task have usefulness in the avionics, commercial, military and flight hardware sectors.

Leveraging: This program will leverage off of prior testing and industry relationships gained through testing in FY00.

Description and Technical Approach: This task proposes the continuation of characterization studies on COTS fiber optic cable assemblies and high reliability cable assemblies for space flight use. New technologies are being developed each year, so to make sure that projects have the widest variety of products to choose from we need to be able to characterize the cables which are emerging on the market. This task will identify newly available designs and will evaluate the best candidates for avionics and flight use. This requires testing of several different cables each year in a variety of environments including thermal, mechanical and radiation. Comparisons to cables currently in use by NASA and feedback to the manufacturers regarding improvements that can enhance reliability will be provided.